

the truth of it was that Dr. Chittenden was jealous. He wanted that likeable, cheerful, young chap, Johnny, all to himself. He was planning how he was to place him in Pops' room and banish Pops for good and all. He did not realize that in the struggle to overthrow Popenoe, he himself would fall over the precipice.

(To be continued.)

THE MALE GENITALIA OF THE NEARCTIC SALPINGIDAE

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Upon beginning a study of the Nearctic genera of the family Salpingidae Leach, 1815 (*olim* Pythidae Thomson, 1859), a search through the literature was made for published descriptions or illustrations of the external male genitalia. Only two figures were found: Sharp and Muir (1912), p. 553, fig. 178, of *Pytho depressus* L., and Jeannel and Paulian (1944), fig. 40, of *Mycterus* sp. Thus, the apparent need for an introduction to the genitalic types in the salpingids was the impetus behind this article.

The external male genitalia of the Salpingidae are similar in many ways to those of the family Oedemeridae described by Arnett (1951). As in his revision, the term genitalia as used here includes segments eight and nine because of their modification and probable role in copulation. Much of the list of definitions in the oedemerid revision can be used for the genitalia of the salpingids. However, the following additions must be made:

Parameral struts—Apodemes extending proximad from the lateral basal angles of the paramere for attachment to the base of the median lobe. A single paramere possesses two struts; double parameres have but one strut each.

Figures of portions of salpingid genitalia are appended to illustrate basic or aberrant types. Figure 1, of *Boros (Lecontia) discicollis* (LeConte), 1850, exhibits many salpingine features, whereas figure 4, of *Cononotus sericans* LeConte, 1851, accomplishes the same for the Mycterinae. Figure 2, of *Trimitomerus*

¹This research was conducted under the supervision of Dr. V. S. L. Pate at Cornell University, and to him I am especially indebted for many suggestions and enthusiastic help.

riversii Horn, 1888, and figure 3, of *Vincenzellus elongatus* (Mannerheim), 1852, help to explain aberrant types.

Segment eight and nine are, for the most part, hidden within the abdomen when the genitalia are at rest. Tergite eight and sternite eight are not greatly modified, and are usually semi-circular or rectangular in shape having a spiracle in the lateral membrane. The sclerites of segment eight seldom exhibit worthwhile taxonomic characters.

Sternite nine is typically made up of two lateral sclerites, well separated, each with an apodeme converging proximally, and the confluence of these apodemes causes the complete sternite to appear V-shaped. This is the *spiculum* of Sharp and Muir and the *spiculum gastrale* of Jeannel and Paulian. Pu (1938) has shown in other Coleoptera that muscles responsible for the protraction and retraction of the aedeagus are attached to sternite nine. Tergite nine is a small sclerite connecting the two apical lateral sclerites of sternite nine dorsally, and its sclerotized portion is usually U-shaped with the open end proximal. In *Lacconotus*, sternite nine appears U-shaped rather than V-shaped, and the lateral sclerites are greatly reduced; tergite nine is non-sclerotized and membranous. In *Mycterus*, the eighth and ninth segments are largely fused and complex; they will be discussed in a future paper. The form of segment nine can often be used as a generic character in salpingids, but specific characters are more frequent in the tergite.

The anus is situated between tergite nine and the aedeagus. Sternite ten is either absent or so membranous as to be obscure. The aedeagus as understood here then comprises all structures on a membranous tube, the second connecting membrane of Sharp and Muir, which extends apically from the anus and sternite nine. The parts of the aedeagus are: tegmenite, basal piece, paramere(s), and median lobe.² The tegmenite, which is present in most genera, assumes either of two forms: a simple sclerite, or a sclerite plus a membranous evagination. In *Pytho* the apex of the membrane connecting the apodemes of sternite nine contains two very small evaginations, which may indicate the possibility that the tegmenite is derived from sternite nine. It should be noted, however, that in *Pytho* the most obvious part of the tegmenite, a simple sclerite, is located midway between sternite

²The tegmenite, basal piece, and paramere(s) together constitute the tegmen.

nine and the basal piece. The form of the tegmenite is often a very reliable generic character.

Distad of the tegmenite are the other two parts of the tegmen: the basal piece and the paramere(s). Together these two parts constitute the tegmen of Sharp and Muir and of Jeannel and Paulian. The basal piece is usually longer than wide and is curved to form a partial sheath for the base of the median lobe. Attached to the apex of the basal piece is a single or double paramere. The single paramere is characteristic of the subfamily Salpinginae, whereas the double paramere is typical of the Mycterinae.

The salpingine paramere is an elongate sclerite, tapered to an acute apex, and curved for the reception of the median lobe. Two lateral lobes attached to, and articulated with, the base of the paramere, are present in all genera except *Trimitomerus* and *Vincenzellus*. In the former the lateral lobes are fused with the paramere for most of their length and are not articulated; in the latter genus the lateral lobes are completely lost. In all genera of the subfamily except *Sphaeriestes* and *Rhinosimus* parameral struts are present. The median lobe varies from curved to straight, and from well sclerotized to predominantly membranous. An eversible internal sac is not evident. The orientation of the tegmen is variable: either dorsal or ventral, depending on the genus.

On the other hand, the mycterine parameres are two in number, and are attached to, and articulated with, the apex of the basal piece. The parameres are either acute and prolonged, or blunt, curved, and abbreviated, and their various forms can often be used as generic or specific characteristics. Lateral lobes are absent. In *Cononotus* a parameral strut is present on each paramere. The median lobe is either long and slender (*Mycterus*), short and slender (*Cononotus*), or short and expanded proximally (*Lacconotus*); an eversible internal sac is not present. In the Mycterinae the tegmen is always ventral.

Jeannel and Paulian state that the aedeagi of both the Salpinginae and the Mycterinae are the "sheath type" (*type vagine*). However, the mycterine aedeagus appears very close to the *trilobe* type except for the somewhat sheath-like appearance of the basal piece and parameres; the correct designation is doubtful. On the basis of the form of the aedeagus each of the

two subfamilies might eventually have to be raised to the rank of family. Investigation of the exotic members of the family will undoubtedly throw more light on the question.

As Sharp and Muir³ suggested, the family Eurystethidae, sometimes incorrectly termed the Aegialitidae, must be relegated to a subfamily position in the Salpingidae because of the typical salpingine genitalia with simple tegmenite. However, in addition, the median lobe of *Eurystethus* possesses an eversible internal sac.

Several early authors noted the resemblance of *Boros unicolor* Say, 1827, to the salpingids. Its genitalia were found to be similar to those of *Lecontia discicollis* (LeConte), 1850; the only obvious difference is the shape of tergite nine. Various external characters parallel this internal similarity. As a result, the genus *Lecontia* Champion, 1889, will have to fall as a junior synonym of *Boros* Herbst, 1797.

The genus *Polypria*, heretofore placed in the subfamilies Lacconotinae or Mycterinae, must be removed from the Salpingidae on the basis of the genitalia. The genus is temporarily placed in the Melandryidae until further investigation. A short description and figure of the genitalia is planned for the near future.

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MALE GENITALIA OF SALPINGIDAE

1. *Boros (Lecontia) discicollis* (LeConte), 1850, dorso-lateral view.
 2. *Trimitomerus riversii* Horn, 1888, dorso-lateral view.
 3. *Vincenzellus elongatus* (Mannerheim), 1852, ventral-lateral view.
 4. *Cononotus sericans* LeConte, 1851, dorso-lateral view.
- Legend, an—anus, bp—basal piece, ll—lateral lobes, ml—median lobe, pm—paramere(s), ps—parameral strut, S9—sternite nine, tn—tegmenite, T9—tergite nine.

³1912, p. 617, fig. 173.

